

REMARKS/ARGUMENTS

Claims 1, 3-12, 14-22, and 33-34 are currently pending. Claims 2, 13, and 23-32 are canceled, without prejudice or disclaimer, by this amendment. Reconsideration and further examination is respectfully requested in view of the below amendments and remarks.

Rejections under 35 U.S.C. §102(b)

Claims 1-5, 8-11, 13, 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Cotton et al. (US 5,623,489).

In order to support a rejection under 35 U.S.C. §102(b) every limitation in the claims should be shown or described by the cited reference. Applicant respectfully submits that the Cotton reference does not show or suggest the limitations of claim 1, which recites:

"A high capacity distributed packet switch comprising a plurality of edge modules, each edge module including at least three input/output ports, the at least three input/output ports being organized in a group of J dual ports, a group of K dual ports and a group of L dual ports; wherein the group of J dual ports is connected by communication links to a single regional core center, the group of L dual ports is connected by communications links to a plurality of global core centers; and the group of K dual ports is connected by communications links to data traffic sources and data traffic sinks."

In the Office Action of August 26, 2004, the Examiner equates the edge modules 122 of the present application to modules 20 in Cotton, a regional core centre 128 in the present invention to switches 30 in Cotton, and a global core center 126 of the present invention to the central office 14 in Cotton. Applicant respectfully disagrees with the Examiner's assertion that the central office 14 in Cotton is analogous to the global core center in the claimed structure.

Cotton, U.S. Patent 5,623,489:

Cotton describes a channel allocation system which selects a switch port and channel for data going through a switch element of a switching network. (Cotton, column 1, lines 60-62).

Figure 1 of Cotton illustrates a system layout, including a number of access switches 24, each of which receives input from a variety of units 11-15 (described as 'voice or data equipment and telephone lines') at ports of interface switches 22. (Col. 3, lines 49 through column 4 line 2).

The Examiner equates the central office to the 'global core centre' 126 of the present invention. Applicant disagrees that such a comparison can be made, as Cotton specifically describes that the 'central office' is merely 'voice or data equipment and telephone lines.' Applicant can find no description or suggestion in Cotton of both a 'regional core' and a 'global core.' Furthermore, the global core center of the present application interconnects a plurality of edge modules belonging to several regional centers 128, while central office 14 in Cotton is a subordinate of a module 20, i.e., central office 14 is a leaf in the network of FIG. 1 in Cotton while a global core center 126 is central to the connectivity of the entire global distributed switch (global network) of FIG. 1-A of the present application.

In addition, although the Examiner refers the Applicant to the tables of switch port assignment, Applicant submits that none of the assignments shown in the tables shows or supports a system that is analogous to that of the claimed invention, which includes *“; wherein the group of J dual ports is connected by communication links to a single regional core center; the group of L dual ports is connected by communications links to a plurality of global core centers; and the group of K dual ports is connected by communications links to data traffic sources and data traffic sinks.”*

Accordingly, for at least the reason that Cotton fails to describe or suggest several limitations of the claim, the rejection under 35 U.S.C. §102(b) is improper and should be withdrawn.

Claim 2 is canceled without prejudice or disclaimer.

Regarding claim 3, the Examiner asserts that Cotton inherently discloses 'each of the plurality of global core centers comprises spatially distributed core modules'. Applicant respectfully points out that the network of FIG. 1 in Cotton does not include global core modules. Applicant also notes that Cotton was silent regarding the internal structure of central office 14, which is referenced in the general statement "FIG. 1 illustrates a switching network for interconnecting various types of voice or data equipment and telephone lines, indicated generally as units 11-15 in accordance with the instant invention". (COL. 3, lines 49-52).

Regarding claim 4, the Examiner asserts that Cotton discloses regional core modules comprising a plurality of parallel memory-less switches. Applicant respectfully points out that the switch elements in Cotton rely on memory for switching. Please see col. 4 lines 44-46, col. 9, lines 8-23, and col. 13 lines 25-35 in Cotton:

col. 4 lines 44-46

"In the preferred embodiment as disclosed, reflection switches, section switches, and access switches are basically the same and each has nineteen switch ports."

col. 9, lines 8-23

"The switch element includes nineteen channel receivers 100 and nineteen channel transmitters 102. Incoming data from another switch element or, in the case of interface switches, from a terminal port is stored in a crosspoint memory 122 on a channel-by-channel basis as directed by an in-address pointer register 128. Similarly, data can be read from the crosspoint memory and directed to a selected channel transmitter of a switch port and a selected channel by an out-address pointer register 130. In this fashion, incoming data can be shifted in space (from any channel receiver of a switch port to any channel transmitter of a switch port) and can be shifted in time (from one input channel to any output channel). The switch element is capable of summing data being placed in a particular crosspoint memory location to provide conferencing by addition of the data for two or more channels."

col. 13 lines 25-35

"Crosspoint memory 122 of FIG. 3a is also shown in FIG. 3b with one memory location identified as "F" for forward crosspoint memory location and another memory location identified as "R" for reverse crosspoint memory location as will be described in more detail hereinafter. Broadcast FIFO buffers 186 are also shown in FIG. 3b which are part of the FIFO buffer section 144 of FIG. 3a. Broadcast FIFO buffers, as it will be further described, are utilized when receiving and transmitting status broadcast messages from one switch element to the other."

Regarding claim 5, the Examiner asserts that Cotton discloses global core modules comprising a plurality of parallel memory-less switches (reference made to centre office 14). Applicant respectfully points out that (1) there are no global core modules in Cotton, and (2) it is well known in the art that a central office stores data to be switched for a period of a TDM frame (125 microseconds, please see FIG. 2 in Cotton).

Regarding claim 8, the Examiner asserts that Cotton discloses a plurality of edge modules divided into groups, each group defining a region. Reference is made to Col. 4 lines 54 to col. 5 line15 in Cotton. Applicant respectfully points out that Cotton disclosed a division of ports in a switch element in port groups; Please see Col. 4, lines 58-60: "A port group specifies a number of switch ports for a switch element that can be utilized for routing such a transmission to its destination."

Regarding claims 9, 10, 11, and 31, the Examiner refers to core modules which do not exist in the network disclosed in Cotton.

Claim 13 is canceled without prejudice or disclaimer.

Rejections under 35 U.S.C. §103(a)

Claims 3, 6-7, 18-19, 22-30, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cotton in view of Lee et al. (US 6,538,784).

In order to support a prima facie rejection under 35 U.S.C. §103(a), a motivation for modifying the references should be shown or suggested, and the modified references should teach or suggest every limitation of the claims.

Applicant has described the inadequacies of Cotton above. With regard to Lee, Lee describes a multicast-capable optical cross-connect with layered modularity (Abstract, Lee). The Examiner states, at page 5 of the office action:

"... Cotton fails to disclose the plurality of parallel memory-less switches is an optical space switch; and the communication links are optical links that support wavelength multiplexed data channels.

Lee, on the other hand, discloses it is well known in the art to provide a plurality of optical space switches and a plurality of W-MUXs to a conventional optical cross-connect (see figure 2 and col. 1 lines 55-62).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide the space switches and W-MUXs of Lee in the Cotton's modules for providing Cotton's system with ability to communicate with conventional optical network..."

No motivation for modification suggested by the Examiner

Applicant respectfully disagrees that a motivation can be found for modifying Cotton to include optical switches, or 'memory-less' switches, because such a modification would only serve to frustrate the operation of Cotton which relies on memory devices to realize "shifting data in time" (Col. 9, lines 16-20). Applicant notes that a process of shifting data in time requires storing the data in a memory device.

As described in column 9 of cotton 'During each switch port time slot, incoming channel information is stored in a cross point memory location and during each outgoing time slot the contents of a crosspoint memory location is retrieved and provided to an outgoing channel transmitter...' Applicant submits that removing the memory from Cotton, which uses TDM and crosspoint memories to correlate data, would only serve to frustrate the operation of Cotton. Accordingly, for at least the reason that no motivation can be found for this modification, the rejection is improper and should be withdrawn.

Combination neither describes nor suggests the limitations of the claimed invention

However, even assuming that one could find a motivation for modifying the references as suggested by the Examiner, the combination of Lee with Cotton fails to

overcome the inadequacies of Cotton with regard to teaching the limitations of the claimed invention. For example, although Lee describes an optical cross connect, the combination of Lee and Cotton fails to describe or suggest the structure claimed in claim 1, of *"...wherein the group of J dual ports is connected by communication links to a single regional core center, the group of L dual ports is connected by communications links to a plurality of global core centers; and the group of K dual ports is connected by communications links to data traffic sources and data traffic sinks.*

Accordingly, for at least the reason that the combination of references fails to describe or suggest the limitations of the claims, it is respectfully requested that the rejection under 35 U.S.C. §103(a) of claims 3, 6-7, 18-19, 22-30, 32 be withdrawn.

Allowable Subject Matter

Applicant thanks the Examiner for the indication that claims 12, 14-17, 20-21, and 33-34 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant has amended:

- claim 12 to include the limitations of the base claim and intervening original claim 2;
- claim 14 to include the limitations of the base claim and intervening claim 2;
- claim 15 to include the limitations of the base claim and intervening claim 3;
- claim 16 to include the limitations of the base claim;
- claim 20 to include the limitations of the base claim; and
- claim 33 to include the limitations of the base claim and intervening claim 11.

Applicant thus submits that amended claims 12, 14, 15, 16, 20, and 33 are now in condition for allowance. Claims 17, 21, and 34 depend on amended claims 16, 20, and 34, respectively, believed to be allowable.

Applicant notes that the limitation of claim 9 and the limitation of claim 11 are mutually exclusive, and both depend from base claim 1 directly. The originally filed claim 11 included a typographical error where 'claim 9' should have read 'claim 1'.

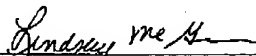
Applicant amended claim 1 to include the limitation of original claim 2 and to add the limitation that each edge module time-locks to a regional core module as described in the specification of the present application. Claims 3-11 depend from amended claim 1.

Applicant has made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Lindsay G. McGuinness, Applicants' Attorney at 978-264-6664, extension 304, so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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